Pollution Prevention Progress (P2P) III

Slide Presentation

P2P III

David Pennington (ORISE)

Bob Knodel (SEEP)
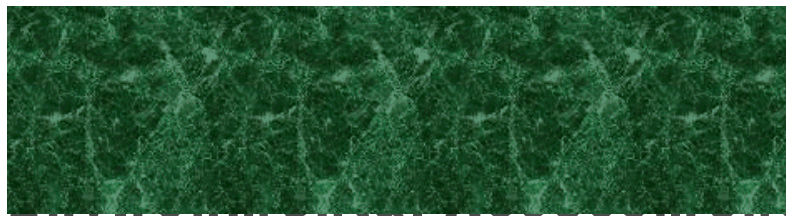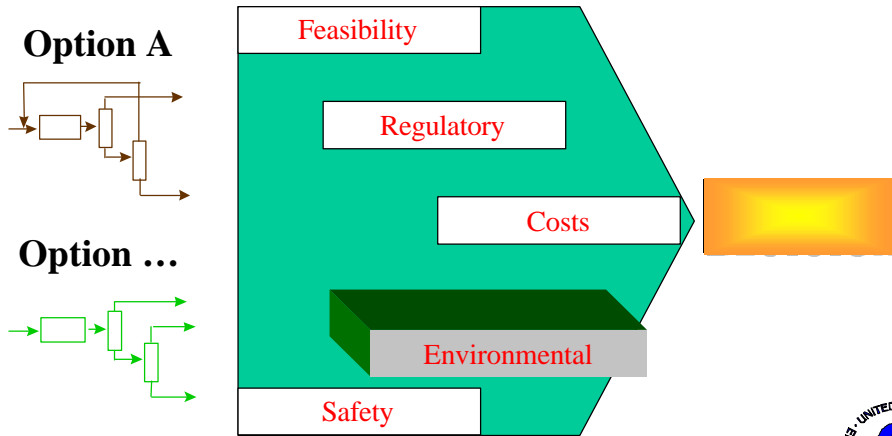
Jane Bare (PI)

Greg Carroll (former PI)

Systems Analysis Branch

Sustainable Technology Division

P2P Relevance

Option A

Option …

Feasibility	
Regulatory	
Costs	
Environmental	
Safety	

Environmental Assessment

- **Categorisation (classification)**

- **Characterisation**

- **Normalisation**

- **Valuation**

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Comprehensiveness vs. Sophistication

- **Mass release quantities**

  - Broad but shallow

- **Mass adjusted by Potentials**

  - Deep but narrow

- **P2P Hybrid**

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P2P Hybrid

- **Still in mass release quantities but**

- **Mass NOT adjusted by Potentials**

- **Potentials and expert judgement used to categorise mass by associated impacts of concern, not to weight the mass**

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Rationale

- **Some potentials are often not scientifically valid to weight mass**

- **Some potentials have a narrow focus**

- **Uncertainty may inhibit level of distinction beyond high/low (high/med/low)**

- **Complementary role of tools (TRACI, P2P,…)**
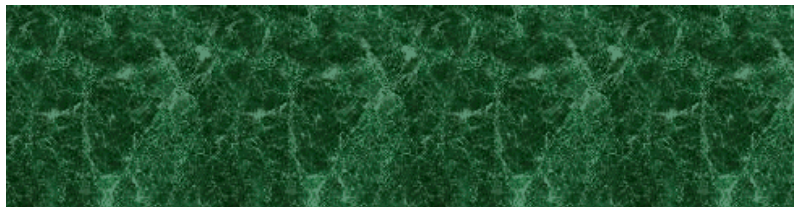
Quantity in terms of: Quantity in terms of:

Benzene   **Global Warming**

HCFC - 123   **Human Health**

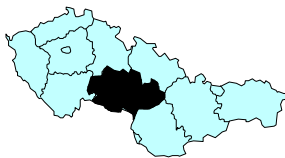**SO2**   **Ecological Health**

….   **…..**

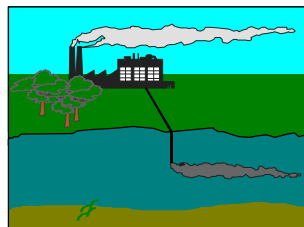**P2P Categorisation Database - 3000 chemicals**

Global

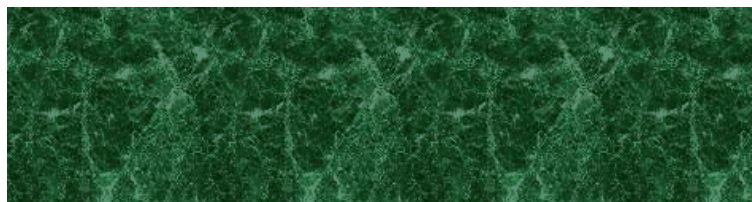Global Warming
Ozone Depletion

Regional

Human Health
Ecological Health
Acidification
Ozone Creation (Smog)
Nutrification
....

Local

Regulations
Particulates
Solid Wastes
Nuclear Wastes
....

Impact Categories

Human and Ecological Health:

•Toxicty to Persistent Bioaccumulative Toxicity Basis

•Score to indicate chemicals of negligible concern

WMPT II (OPPT/OSW)

•Persistence: Multimedia basis (air, water, soil, sediment)

•Improved Data Hierarchies

W M P T

• **Persistence (1-3 => low to high)**

• Multimedia persistence (residence time in environment)

• Metals - typically a default of 3
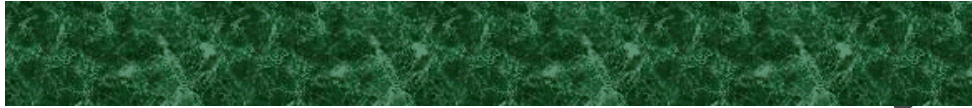
• **Bioaccumulation (1-3)**

• BCF/BAF

• **Toxicity (1-3)**

• hierarchies based on EPA data preference

Use of WMPT in P2P

• **Use of individual PB&T scores**

• **WMPT 1-3 (metals) or 3-9 converted to P2P yes/no**

• **Screen out low concern chemicals**

• **Ability to modify logic**

  - e.g. cut-off score

  - e.g. all chemicals with P >2 or P&T > 2

• **Consider Carcinogens independently**

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- **Quantification of Impact Contributions**

  - Relative contributions within categories

- **Normalisation**

  - Relative significance of a category score

- **Valuation**

  - Relative significance of scores among categories

Complementary to TRACI - Tool for the Reduction and Assessment of Chemical Impacts

P2P III

- Screening tool for beyond compliance environmental comparisons

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- Broad but shallow

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- Database for about 3000 chemicals and 23 impact categories

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- Complementary to ORD and OPPT Tools

Speaker Biography: Dr. David William Pennington

1997-Present: Post Doctoral Research Fellowship at the Systems Analysis Branch of the U.S. EPA National Risk Management Research Laboratory (NRMRL) in Cincinnati, Ohio; U.S. EPA Persistent Bioaccumulative and Toxic Pollutants Initiative (PBTI); Pollution Prevention Progress (P2P); Tool for Reduction and Assessment of Chemicals (TRACI); SETAC Europe LCA

Previous: Hong Kong University of Science & Technology; Advanced Mechanics and Engineering (AME)

EDUCATION

1990-1992: University of Surrey in England where he obtained an Honors Degree in Chemical Engineering.

He has continued his research and development activities in the areas of environmental impact comparison and screening. A key interest in his R&D activities has been the simplification and use of multimedia models in the application of predicting persistence, relative impact potentials and long-range transport capabilities of chemicals . He is currently a participant in three key activities: The U.S. EPA Persistent Bioaccumulative and Toxic Pollutants Initiative (PBTI) working group; Jane Bare=s development of Pollution Prevention Progress (P2P) and the Tool for Reduction and Assessment of Chemicals (TRACI); and the SETAC Europe LCA working groups on chemical fate and exposure, human toxicological impacts and ecological toxicological impacts.